BC Bee Atlas

Municipal Report – City of North Vancouver

2024 Baseline data

Prepared For:

City of North Vancouver
Engineering, Parks & Environment Department.

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Cover Photo: *Bombus flavifrons*: Yellow-fronted bumble bee. © Lori Weidenhammer
All other photos by Bonnie Zand

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Executive Summary

Over the summer of 2024 the Native Bee Society of BC, in collaboration with the OSU Master Melittologists, surveyed for bees in the City of North Vancouver. Over 10 survey days 175 specimens from five families, 14 genera and 43 species were collected from 36 different plant species. One species at risk, *Bombus flavidus*, was observed, as well as nine non-native species. Previous to these surveys, only 13 species were in the publicly available record. A species checklist is provided, as well as details on plant use by different bee families.

Description of project

The BC Bee Atlas provided native bee survey services to the City of North Vancouver over the summer of 2024, under contract with the City of North Vancouver Engineering, Parks & Environment Department. Surveys were intended to provide baseline data on native bee diversity and plant use to the City of North Vancouver, as well as a preliminary species list to guide ongoing pollinator conservation efforts. A specific focus of the project was on a City of North Vancouver pilot project to reduce mowing in areas of Grand Boulevard Park. Without baseline data, determining the possible effects of habitat modification is difficult. In addition, without a species-level understanding of the fauna using City of North Vancouver parks, planting plans and modifications may inadvertently support common or introduced species rather than rare and vulnerable species. The production of a species list is intended to provide the City of North Vancouver with specific information on the rare, common and introduced species using the park and the plants supporting those species.

BC Bee Atlas Survey Methods

Surveys were conducted by volunteers trained by the Oregon State University Master Melittologist Program, following methods outlined by Best et al. (2022). Volunteers hand-netted bees from flowers within City of North Vancouver Parks. Bee specimens were retained, pinned, labelled, and submitted to the BC Bee Atlas for identification. Flowers bees were collected on were photographically documented using the citizen science platform iNaturalist, producing bee-plant association records. All the bee specimens collected from a single species of plant by a volunteer on a single day comprised one sample event.

There were two primary focus areas for these surveys:

1. The Grand Boulevard low-mow meadow area (Figure 1). Prior to surveys this space was seeded with a “bee-friendly” flowering lawn mix (Appendix 1, Parker 2024), and received minimal mowing during the summer of 2024.

2. Pollinator Gardens. There were two intentionally planted pollinator gardens in the Grand Boulevard Park between 16th and 18th street (Figure 2). These gardens were more established than the meadow area and included additional features to support pollinators such as mason bee nesting blocks, logs, hollow and pithy stems and mulch.

FIGURE 1. LOW MOW MEADOW AREA IN GRAND BOULEVARD PARK. GOOGLE MAPS.

FIGURE 2. ESTABLISHED POLLINATOR GARDEN IN GRAND BOULEVARD PARK. PHOTO B. ZAND

A permit letter for volunteers participating in surveys was provided by the City of North Vancouver. Volunteer guidance was provided by the Native Bee Society of BC at a preliminary training event on May 4th; through project documents and maps; and through additional planned collecting events over the summer.

Specimens collected during the summer of 2024 were identified to species or morphospecies using taxonomic keys and reference materials. Their conservation status, nesting habitat and pollen preferences were noted (Appendix 2). For morphospecies and others where life history information was not available, generic trends were used to supply the information. Some species identifications are still tentative, awaiting confirmation with reference material. Those species have been marked with (*Prov.*) in the text and tables. The following references were consulted: Ascher and Pickering 2025, BC Conservation Data Centre 2025, Canadian Endangered Species Conservation Council 2022, DeSilva 2012, Engler et al. 2024, Fowler 2020, Gardner and Gibbs 2022, Gonzalez and Griswold 2013, LaBerge 1969, LaBerge 1986, LaBerge 1973, LaBerge and Bouseman 1970, McGinley 1986, Oram, 2019, Portman et al. 2024, Roberts 1973, Sheffield 2025, Sheffield et al. 2011, Williams et al. 2014.

Graphs were created using Microsoft Excel and R Studio. Species accumulation curves were run using iNEXT (Chao et al. 2014, 2016), while bee-plant network visualizations were created using the biparteD3 package (Terry 2021).

Publicly available records on bee occurrences for the City of North Vancouver were retrieved from the Global Biodiversity Information Facility (GBIF 2025). This data included both specimen records and research grade records from the NBSBC Bee Tracker iNaturalist Project (NBSBC Bee Tracker, 2025). Since identifications for iNaturalist do not require expert verification before uploading to GBIF, any records relying on less than three

iNaturalist observations were removed from the dataset. No other quality controls were applied to this public data. This data was used to assess the publicly available record of wild bees in the community of North Vancouver prior to surveys by the NBSBC. More information about the publicly available data can be found in Appendix 3.

BC Bee Atlas Survey Results

Sampling Effort:

During 2024 a total of 10 volunteers participated in surveys. At least one survey occurred every month between May and September, with volunteers collecting on 10 different days over the summer. A total of 75 sample events occurred, with collections made on 36 different species, and 33 genera of plants. An average of 2.3 bee specimens were collected during each sample event, with a range of 1-16 (Table 1).

TABLE 1. SURVEY DAYS, SAMPLING EVENTS AND SPECIMENS COLLECTED IN THE CITY OF NORTH VANCOUVER DURING THE SUMMER OF 2024 BY THE NATIVE BEE SOCIETY OF BC.

Month	# of days of survey	# of sample events	# of specimens collected	# of species documented
May	1	15	12	9
June	2	24	66	28
July	2	7	33	16
August	3	15	44	17
September	3	16	20	5

Twenty-six of the sample events were from the meadow area, 37 from the pollinator gardens and 12 from elsewhere in the City of North Vancouver. Twenty-one plant species were sampled from the pollinator gardens, 15 from the meadow area, and 10 from elsewhere in the City of North Vancouver (Figure 3).

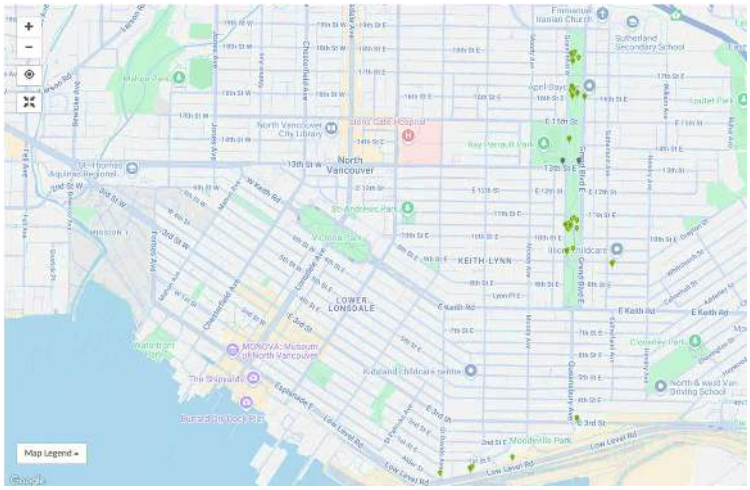

FIGURE 3. LOCATION OF SAMPLING EVENTS DURING NATIVE BEE SURVEYS IN THE CITY OF NORTH VANCOUVER PROVIDED BY THE NATIVE BEE SOCIETY OF BC AND THE MASTER MELITTOLOGISTS DURING THE SUMMER OF 2024. GREEN POINTS INDICATE SAMPLE EVENTS. MAP DATA ©GOOGLE MAPS 2005. POINT DATA ©INATURALIST 2005.

Bee Diversity

Between May and September 2024, the BC Bee Atlas volunteers collected 175 specimens, comprising five families, 14 genera and 43 species, including 36 species not previously included in the public record from the City of North Vancouver (Figure 4, Table 2). An average of four specimens per species (range 1-27) were collected. Three of the collected specimens were non-bee taxa (flies and wasps). Six species were found in the public record, but not in our samples; however, five of those have not been recorded since before 1990, and two are now COSEWIC listed as threatened (Appendix 2, 3).

In the low-mow meadow, a total of 25 bee species and 78 bee specimens were collected. In the pollinator gardens, 21 bee species and 69 bee specimens were collected.

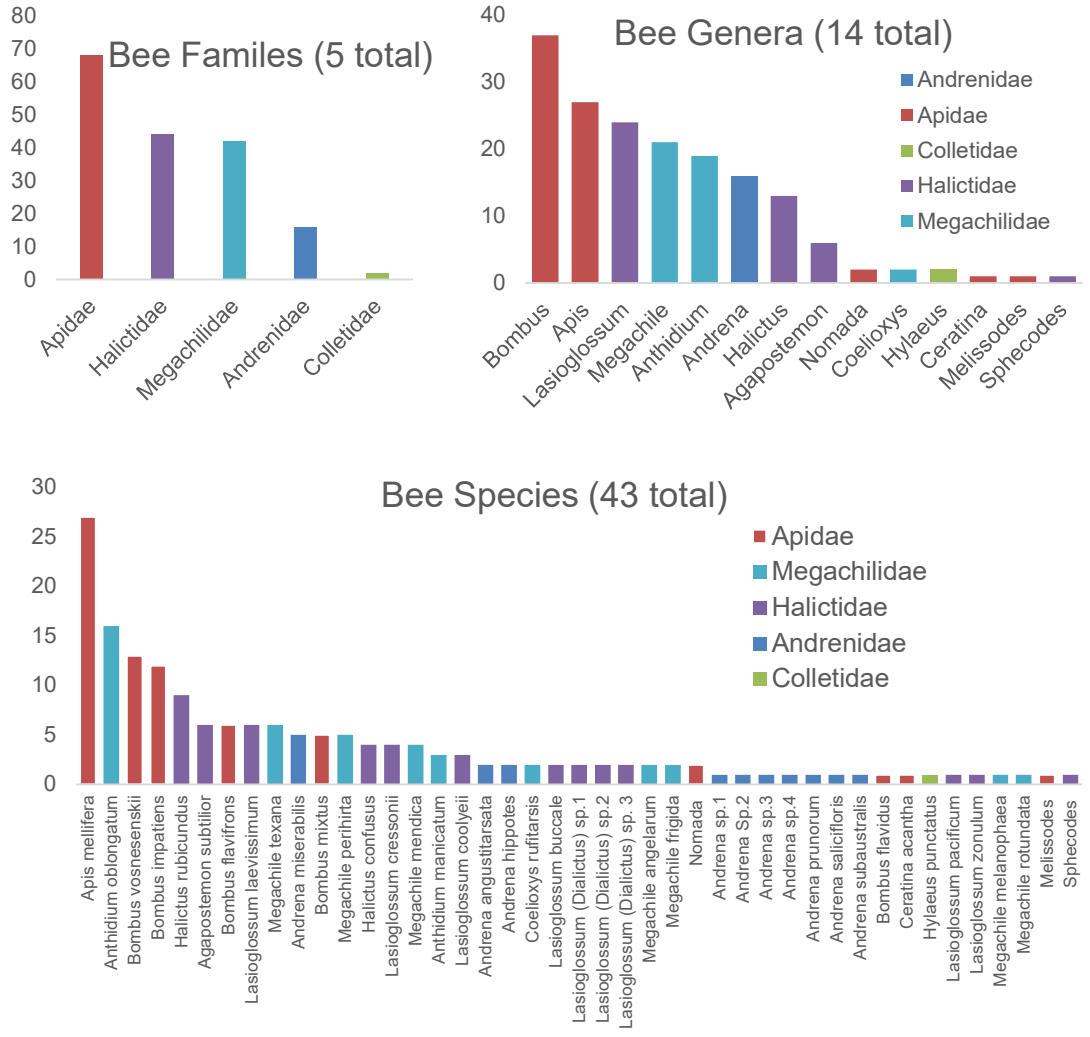

FIGURE 4. RANK ABUNDANCE PLOTS OF SPECIMENS COLLECTED BY THE NATIVE BEE SOCIETY OF BC FROM THE CITY OF NORTH VANCOUVER DURING THE SUMMER OF 2024. NUMBER OF SPECIMENS IS RECORDED ON THE Y AXIS, WHILE FAMILY, GENUS AND SPECIES ARE ORGANIZED ALONG THE X AXIS IN ORDER OF ABUNDANCE.

One recorded species is considered to be at risk. *Bombus flavidus* Eversmann, 1852 is blue-listed in British Columbia and considered to be of special concern (BC Conservation Data Centre 2025).

The most abundant family was the Apidae, which includes both introduced honey bees (*Apis mellifera* Linnaeus, 1758) and bumble bees (*Bombus*). Nine species and 68 individuals were recorded. Honey bees were the single most commonly observed taxa. Bees recorded from the family Apidae also include small carpenter bees (*Ceratina*), long-horn bees (*Melissodes*) and nomad cuckoo bees (*Nomada*).

Five bumble bee species were documented. Social bumble bees that live in colonies with a single queen and multiple workers are common generalist pollinators. They can forage at long distances from their nest and are common visitors in gardens. We also documented one individual of a socially parasitic bumble bee species. *Bombus flavidus* has no worker caste, instead, the queen takes over the nest of a social bumble bee species, where her offspring are cared for by the social workers (Williams et al. 2014).

The second most abundant family, the Halictidae, had 12 species, and 44 individuals. Most members of the Halictidae are ground nesting bees, while *Lasioglossum cressonii* (Robertson, 1890) has been recorded nesting in rotten wood. Many members of the small sweat bees (*Lasioglossum*) and furrow bees (*Halictus*) have social colonies and are present throughout the season. Non-social genera such as green metallic sweat bees (*Agapostemon*) have multiple generations per year. We also detected one individual blood bee (*Sphecodes*), which is a nest parasite on other Halictidae. All the Halictidae species we detected were generalist foragers.

The family Megachilidae (10 species, 42 individuals) was primarily represented by two genera. The leafcutter bees (*Megachile*) are summer and fall bees that use a variety of plant materials and resins to construct nest cells. While some species, such as the introduced *Megachile rotundata* (Fabricius, 1787) will nest in provided tunnel nests, many other species in this genus nest in the ground. Our surveys also recorded two introduced wool carder bee species (*Anthidium*). *Anthidium oblongatum* (Illiger, 1806) was the second most frequently collected species in our surveys. We also collected two sharp-tailed bees (*Coelioxys)* individuals. These cuckoos parasitize the nests of *Megachile*.

Interestingly, we did not detect any mason bees (*Osmia*). As mason bee nesting blocks were present in the gardens, likely at least *Osmia lignaria* Say 1837, the blue orchard mason bee is present in the gardens. However, as with many other bees, *Osmia* have a short adult flight season. Our sampling would miss any species where we did not coincide with adult flight. In addition, volunteers were explicitly instructed to avoid collecting specimens going to and from the nesting blocks.

We recorded 10 species and 16 individuals from the family Andrenidae, all from the genus *Andrena* (mining bees). All *Andrena* are solitary, ground nesting bees. While some species such as *Andrena prunorum* Cockerell, 1896 are floral generalists, many *Andrena* species have specific floral hosts. For example, *Andrena salicifloris* Cockerell, 1897, is a pollen specialist. While females of this species collect *Salix* pollen for their young (Fowler 2020), both males and females will visit other plant species for nectar. Our Master Melittologist volunteers did not collect on any willow during the study; however, the collected individual

may have been nectaring. There are likely many more *Andrena* species present in the City of North Vancouver, but because of the specialist nature of their foraging, sampling would need to occur on their specific host plants.

The rarest family during our study was the family Colletidae, represented by 2 individuals and one genus. Yellow-faced bees (*Hylaeus*) are very small black and yellow bees that carry pollen internally and nest in hollow stems. The species we detected, *Hylaeus punctatus* (Brullé, 1832) is a new introduction to North America, with initial detections on the west coast beginning in 2021.

TABLE 2. BEE SPECIES DOCUMENTED BY THE NATIVE BEE SOCIETY OF BC IN THE CITY OF NORTH VANCOUVER DURING THE SUMMER OF 2024. SPECIMENS WERE COLLECTED FROM EITHER THE GRAND BOULEVARD POLLINATOR GARDENS, THE GRAND BOULEVARD LOW-MOW MEADOW OR ELSEWHERE IN THE CITY. THE GENUS OF PLANTS EACH BEE SPECIES WAS COLLECTED FROM WAS RECORDED USING INATURALIST. SPECIES IDENTIFICATIONS WITH A (PROV.) ARE STILL PROVISIONAL, WHILE SPECIES WITH A STAR ARE NOT NATIVE TO THE REGION.

	Location in North Vancouver				
Species Detected	Grand Boulevard Pollinator Gardens	Grand Boulevard "low-mow" meadow	Other	Total	Associated Plant Genera
Agapostemon		**5**	**1**	**6**	
Agapostemon subtilior		5	1	6	*Achillea, Hypochaeris, Ranunculus, Rubus, Trifolium*
Andrena	**2**	**6**	**8**	**16**	
Andrena sp.1	1			1	*Philadelphus*
Andrena sp.2			1	1	*Hesperis*
Andrena vicinoides		1		1	*Rubus*
Andrena sp.4			1	1	*Prunus*
Andrena angustitarsata			2	2	*Ceanothus*
Andrena hippotes	1		1	2	*Berberis, Eriophyllum*
Andrena salicifloris		1		1	*Sorbus*
Andrena subaustralis (prov.)			1	1	*Fragaria*
Andrena miserabilis		3	2	5	*Prunus, Sorbus*
Andrena prunorum		1		1	*Sorbus*
Anthidium	**3**	**14**	**2**	**19**	
*Anthidium manicatum**	1		2	3	*Digitalis, Nepeta*
*Anthidium oblongatum**	2	14		16	*Lotus, Sedum, Trifolium*
Apis	**17**	**9**	**1**	**27**	

Species Detected	Location in North Vancouver: Grand Boulevard Pollinator Gardens	Grand Boulevard "low-mow" meadow	Other	Total	Associated Plant Genera
*Apis mellifera**	17	9	1	27	*Anaphalis, Hylotelephium, Hypochaeris, Lotus, Nepeta, Rosa, Rubus, Rudbeckia, Salvia, Sedum, Spiraea, Symphyotrichum, Trifolium, Hydrangea.*
Bombus	**28**	**8**	**1**	**37**	
Bombus flavidus	1			1	*Symphyotrichum*
Bombus flavifrons	5	1		6	*Nepeta, Rubus*
*Bombus impatiens**	11	1		12	*Lavandula, Nepeta, Sedum, Solidago, Symphyotrichum, Trifolium*
Bombus mixtus	4		1	5	*Armeria, Rubus, Salvia*
*Bombus vosnesenskii**	7	6		13	*Lotus, Nepeta, Rubus, Salvia, Spiraea, Trifolium, Verbena*
Ceratina			**1**	**1**	
Ceratina acantha			1	1	*Rosa*
Coelioxys		**2**		**2**	
Coelioxys rufitarsis		2		2	*Lotus*
Halictus	**4**	**7**	**2**	**13**	
Halictus confusus	1	3		4	*Achillea, Lotus, Ranunculus, Sedum,*
Halictus rubicundus	3	4	2	9	*Achillea, Eriophyllum, Hypochaeris, Rubus, Taraxacum*
Hylaeus	**1**		**1**	**2**	
Hylaeus			1	1	*Ceanothus*
*Hylaeus punctatus**	1			1	*Solidago*
Lasioglossum	**11**	**8**	**5**	**24**	
Lasioglossum	1			1	*Symphyotrichum*
Lasioglossum buccale			2	2	*Digitalis*
Lasioglossum coolyeii (prov.)	1	2		3	*Ranunculus, Hydrangea*
Lasioglossum cressonii	2	1	1	4	*Eriophyllum, Prunus, Rubus*
Lasioglossum sp.1		2		2	*Ranunculus, Rubus*
Lasioglossum sp.2	1		1	2	*Rubus, Sedum*
Lasioglossum sp.3		2		2	*Hypochaeris*
Lasioglossum pacificum	1			1	*Solidago*

Species Detected	Location in North Vancouver: Grand Boulevard Pollinator Gardens	Grand Boulevard "low-mow" meadow	Other	Total	Associated Plant Genera
*Lasioglossum zonulum**		1		1	*Hypochaeris*
Lasioglossum laevissimum	5		1	6	*Eriophyllum, Hylotelephium, Hypochaeris, Sedum, Solidago,*
Megachile	**2**	**19**		**21**	
Megachile angelarum		2		2	*Lotus,*
Megachile mendica	1	3		4	*Cosmos, Hypochaeris, Lotus, Rubus,*
Megachile texana (prov.)	1	5		6	*Hypochaeris, Lotus, Rubus, Sedum*
Megachile frigida		2		2	*Lotus, Vica*
Megachile melanophaea		1		1	*Rubus*
Megachile perihirta		5		5	*Hypochaeris*
*Megachile rotundata**		1		1	*Hypochaeris*
Melissodes			**1**	**1**	
Melissodes			1	1	*Hypochaeris*
Nomada	**1**		**1**	**2**	
Nomada	1		1	2	*Fragaria*
Sphecodes			**1**	**1**	
Sphecodes			1	1	No plant associations
Non-Bee Specimens		**3**		**3**	***Achillea, Ranunculus***
Grand Total	69	81	25	175	33

Agapostemon=green metallic sweat bees; *Andrena*=mining bees; *Anthidium*=wool carder bees; *Apis*=honey bees; *Bombus*=bumble bees; *Ceratina*=small carpenter bees; *Coelioxys*=sharp-tailed bees; *Halictus*=furrow bees; *Hylaeus*=yellow-faced bees; *Lasioglossum*=small sweat bees; *Megachile*=leafcutter bees; *Melissodes*=fall long-horn bees; *Nomada*=nomad bees; *Sphecodes*=blood bees.

The estimated species coverage for the sampling performed is 91%, with an estimated 52 species (95% CI: 41-63) if the sampling effort was doubled (Figure 5). These estimates are only valid for the areas and times where sampling occurred – sampling in additional areas of the City, at different times, or on different plant species would increase species numbers.

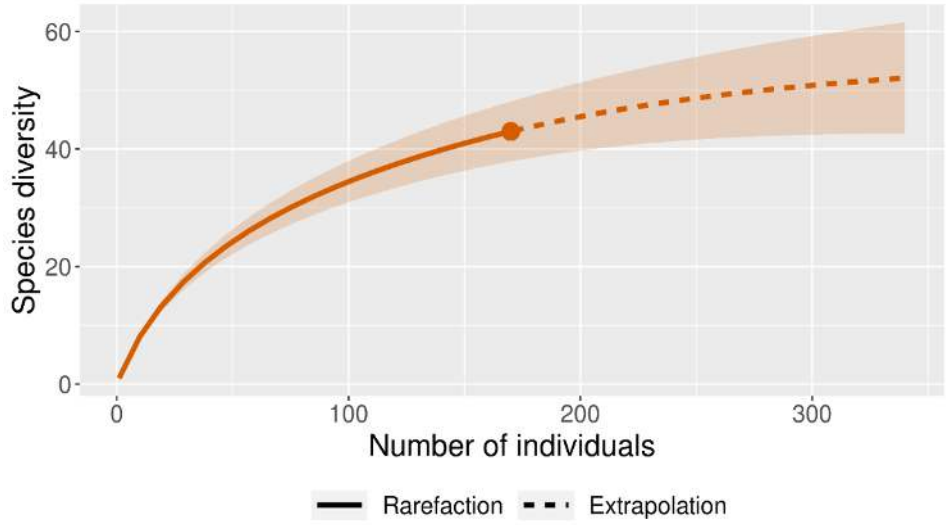

Figure 5. Species accumulation curve for sampling in the City of North Vancouver. The solid line indicated a rarefied species accumulation curve based on actual samples. The dotted line is an extrapolation of the curve, with an endpoint at twice the actual number of individuals sampled. The shaded area represents 95% confidence intervals. Analysis run and figure created using iNEXT 2016.

Introduced Species in North Vancouver

The four most abundant bee species in these surveys, comprising 68 individuals and 39% of specimens, are not native to the region. *Apis mellifera* was introduced during colonization, and is an important managed pollinator for commercial agriculture. *Anthidium oblongatum* is a recent accidental introduction (Russo 2016). *Bombus vosnesenskii* Radoszkowski, 1862 is native to British Columbia but has expanded its range since 2000 (Fraser et al. 2012*).* *Bombus impatiens* Cresson1863 was intentionally introduced into Fraser Valley greenhouses for pollination and escaped populations have been documented since 2003 (Ratti and Colla, 2010).

In total 9 non-native species were detected in North Vancouver, making up 21% of species and 43% of individuals.

Nesting Habitat

The majority (76%) of bee species recorded during these surveys nest in the ground, with an additional 18% nesting in existing cavities such as mason bee blocks, beetle tunnels in dead wood or hollow stems. Two species have been recorded nesting in rotting wood, while one species excavates pithy stems.

Foraging Preferences

Most of the species documented are generalists, meaning they will forage on a variety of plants. However, even within generalist species, floral preferences are evident. Five of the recorded species are known to be specialists, meaning they forage on only a small subset of available plants, often within one plant family or genus. Generalist foragers are more likely to persist and thrive in many different environments, while specialist foragers are unable to persist in an environment unless their required plant host is present (Figure 6). Four species

were parasitic. These species do not collect pollen for their larva, rather, they rely on the pollen collected by their host species.

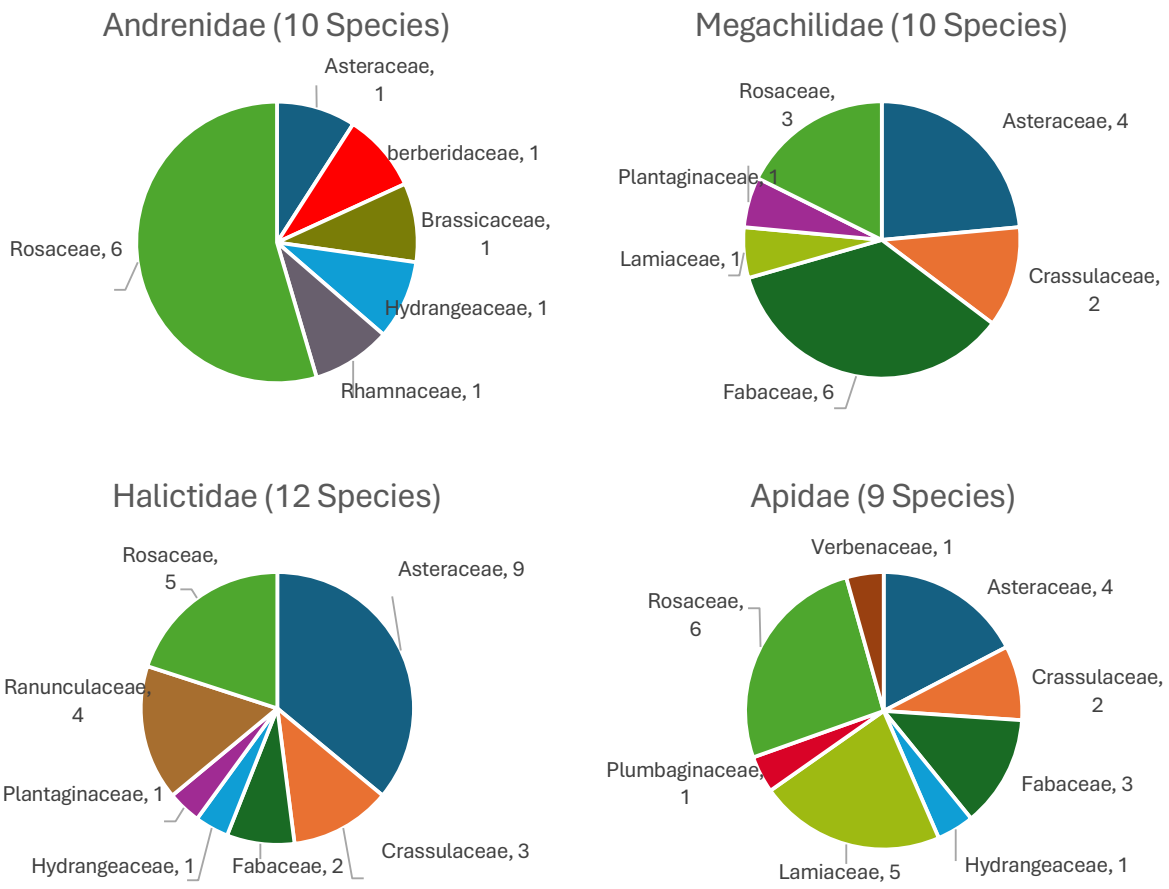

FIGURE 6. THE NUMBER OF BEE SPECIES DOCUMENTED BY THE NATIVE BEE SOCIETY OF BC USING EACH OF THE PLANT FAMILIES SURVEYED IN THE CITY OF NORTH VANCOUVER. GRAPHS ARE ORGANIZED BY BEE FAMILY. THE FAMILY COLLETIDAE WAS REPRESENTED BY ONLY TWO SPECIMENS, ONE FORAGING ON ASTERACEAE AND ONE ON RHAMNACEAE.

The six plant genera that attracted the greatest diversity of bees were *Rubus* (13 species), followed by *Hypochaeris* (11 species), *Lotus* (nine species), *Sedum* (7 species), *Nepeta* (5 species), *Ranunculus* (5 species) and *Trifolium* (5 species). Rubus, Hypochaeris, Lotus, Ranunculus and Trifolium were documented in the meadow area. Of the plants that were part of the seeding mix for the meadow, only *Achillea* and *Trifolium* had bees recorded foraging on them. However, most of the other species on the planting list had low abundances during the survey period. A pollinator network for all genera of bees and plants sampled during 2024 is found in Figure 7.

Additional data on bee plant relationships in the City of North Vancouver, derived from iNaturalist data, can be found in Appendix 4.

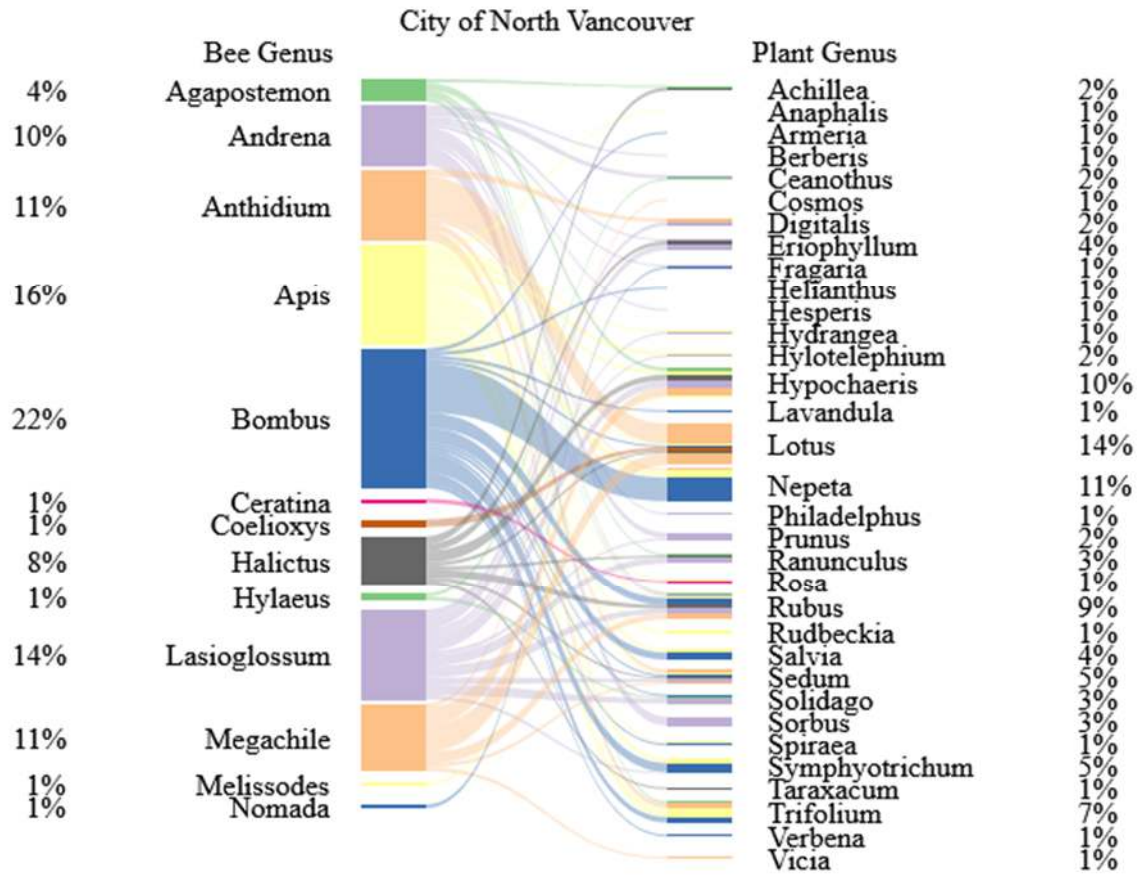

FIGURE 7. BI-PARTITE POLLINATOR NETWORK FOR THE CITY OF NORTH VANCOUVER. SAMPLED BEE GENERA ARE ON THE LEFT, WHILE PLANT GENERA ARE ON THE RIGHT. EACH LINE REPRESENTS ONE INDIVIDUAL SPECIMEN. SPECIMENS NOT ASSOCIATED WITH FLOWERS WERE NOT INCLUDED IN THIS ANALYSIS.

Recommendations

Increase Flower Abundance

As bee reproductive success is partially based on the amount of pollen they can collect to provision offspring, increasing the amount of pollen and nectar available will increase bee numbers. This can include increasing the area of formal plantings, as well as creating conditions that allow flowers to bloom in lawn areas, such as increasing mower height, decreasing mowing frequency, or replacing grass with a more diverse and flower-rich ground cover. Many weedy species provide excellent pollinator resources if they are permitted to bloom. Although not formally sampled during our study, completely unmanaged areas, such as riparian corridors with native shrubs, will also provide an increase in floral abundance for pollinators. Where current plantings consist mainly of ornamentals without accessible pollen or nectar, replacing these plants with species that provide resources to pollinators can increase abundance without increasing the area under management. A list of plants bees have been recorded on from iNaturalist can be found in Appendix 4.

Increase Flower Diversity

Many bee species have generalist foraging habitats, and any increase in floral resources will benefit them. These include bumble bees and honey bees. However, some of the least common species we detected are specialists. These bees require specific flower hosts to provide pollen for their young. While the specific pollen preferences of many bee species are still unknown, providing flowers with a diversity of shapes, colours and bloom times will support a greater diversity of bees. Aim for multiple families and genera of flowers in bloom during each season. Where possible, using native plants will increase the likelihood that specialist bees are provided for, while also providing resources to generalists.

Increasing Nesting Sites

Bees are central place foragers, meaning they must return to their nest multiple times per day. When nesting resources are far away from floral resources bees' reproductive success is reduced. Many bees also spend the majority of their lives, including overwinter, in their nests. Nests must be undisturbed for long periods (over a year for some species) to allow the larva within them to fully develop and emerge. Protecting and providing nesting sites close to floral resources will increase bee abundance. Many species nest in the ground, and multiple ground nesting aggregations were observed in areas of patchy lawn during surveys. Tolerating areas of bare soil or patchy grass provide ground nesting species with soil access. Some species nest in hollow or pithy stems. For these species, reducing the amount of "garden clean-up" will allow them to complete their development. Other species will nest in tunnels in wood, often provided by beetles in snags. Retaining snags and providing logs will support these species.

Short-term reductions in mowing are not likely to provide nesting spaces for stem nesting species unless the areas are left unmown for over a year.

For meadow and pollinator garden maintenance, a three-year cycle, where only a third of the area is disturbed or mown each year will allow bees nesting in stems to complete their reproductive cycle.

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Appendices

Appendix 1. Bee-Friendly Flowering Lawn Mix

Bee Friendly Flowering Lawn Mix
20% Perennial Ryegrass
66% Quatro Sheeps Fescue
5% Strawberry Clover
1% Microclover
0.5% English Daisy
3% Western Yarrow
2% Baby Blue Eyes
0.5% Creeping Thyme
2% White Alyssum

Appendix 2. Detailed Species List

City of North Vancouver Species	BC Status Rank		Sociality	Nesting Habitat	Pollen Specialization
	Wild Species Canada 2020	Conservation Data Centre 2016			
Agapostemon subtilior Cockerell, 1898	S5	S5 (NR)	Solitary	Ground	
Andrena angustitarsata Viereck, 1904	S5	S5 (NR)	Solitary	Ground	
Andrena hippotes (prov.) Robertson, 1895	S5	S5 (NR)	Solitary	Ground	
Andrena miserabilis Cresson, 1872	S5	S5 (NR)	Solitary	Ground	
Andrena prunorum Cockerell, 1896	S5	S5 (NR)	Solitary	Ground	
Andrena salicifloris Cockerell, 1897	S5	S3S4 (NR)	Solitary	Ground	Salix
Andrena subaustralis (prov.) Cockerell, 1898	SU	S3S4 (NR)	Solitary	Ground	Salix
Andrena sp. 1			Solitary	Ground	
Andrena sp. 2			Solitary	Ground	
Andrena vicinoides			Solitary	Ground	
Andrena sp. 4			Solitary	Ground	
Anthidium manicatum (Linnaeus, 1758)	SNA	SNA (Exotic)	Solitary	Cavity Renter	
Anthidium oblongatum (Illiger, 1806)	Not-Ranked:	Exotic	Solitary	Cavity Renter	
Apis mellifera Linnaeus, 1758	SNA	SNA (Exotic)	Social	Cavity Renter	
Bombus flavidus Eversmann, 1852	S3S5	S3S4 (Blue)	Social Parasite	Ground	N/A
Bombus flavifrons Cresson, 1863	S5	S5 (Yellow)	Social	Ground	
Bombus impatiens Cresson, 1863	SNA	SNA (Exotic)	Social	Ground	
Bombus mixtus Cresson, 1863	S5	S5 (Yellow)	Social	Ground	
Bombus vosnesenskii Radoszkowski, 1862	S5	S5 (Yellow)	Social	Ground	
Ceratina acantha Provancher, 1895	S5	S5 (NR)	Variable	Carpenter	
Coelioxys rufitarsis Smith, 1854	S3S5	S3S4 (NR)	Parasitic	Ground	N/A
Halictus confusus Smith, 1853	S5	S5 (NR)	Social	Ground	
Halictus rubicundus (Christ, 1791)	S5	S5 (NR)	Variable	Ground	
Hylaeus punctatus (Brullé, 1832)	Not-Ranked:	Exotic	Solitary	Cavity Renter	
Lasioglossum buccale (Pérez, 1903)	Not-Ranked:	Exotic	Solitary	Ground	Lamiaceae, Plantaginaceae
Lasioglossum coolyeii (prov.) (Crawford, 1906)	S4S5	S5 (NR)	Social	Ground	

City of North Vancouver Species	BC Status Rank		Sociality	Nesting Habitat	Pollen Specialization
	Wild Species Canada 2020	Conservation Data Centre 2016			
Lasioglossum cressonii (Robertson, 1890)	SU	S5 (NR)	Social	Rotting Wood	
Lasioglossum laevissimum (Smith, 1853)	S5	S5 (NR)	Social	Ground	
Lasioglossum pacificum (Cockerell, 1898)	SU	SU (NR)	Solitary	Ground	
Lasioglossum zonulum (Smith, 1848)	SNA	SNA (Exotic)	Solitary	Ground	
Lasioglossum (Dialictus) sp.1			Social	Ground	
Lasioglossum (Dialictus) sp.2			Social	Ground	
Lasioglossum (Dialictus) sp.3			Social	Ground	
Megachile angelarum Cockerell, 1902	S3	S3 (NR)	Solitary	Cavity Renter	
Megachile frigida Smith, 1853	S5	S4S5 (NR)	Solitary	Cavity Renter, Rotting Wood	
Megachile melanophaea Smith, 1853	S5	S5 (NR)	Solitary	Ground	Fabaceae
Megachile mendica Cresson, 1878	SU	S5 (NR)	Solitary	Cavity Renter	
Megachile perihirta Cockerell, 1898	S5	S5 (NR)	Solitary	Ground	Asteraceae, Fabaceae
Megachile rotundata (Fabricius, 1787)	SNA	SNA (Exotic)	Solitary	Cavity Renter	
Megachile texana (prov.) Cresson, 1878	SU	S5 (NR)	Solitary	Ground	
Melissodes			Solitary	Ground	
Nomada			Parasitic	Ground	N/A
Sphecodes			Parasitic	Ground	N/A

Key: S=Subnational; 5= Secure; 4=Apparently secure; 3=Special concern, vulnerable; 2=Imperilled; 1=Critically imperilled; NA=Not applicable; U=Unrankable; ?=Inexact numeric rank; NR = Not reviewed

Additional species documented in the public record, but not observed by the Native Bee Society of BC. For details on these species, see Appendix 3.

Species	BC Status Rank		National Status Rank		Year last recorded
	Wild Species Canada 2020	Conservation Data Centre 2016	COSEWIC Rank	SARA Rank	
Bombus fervidus (Fabricius, 1798)	S5	S5 (Yellow)			1960
Bombus melanopygus Nylander, 1848	S5	S5 (Yellow)			2024
Bombus occidentalis Greene, 1858	S2S3	S4 (Yellow)	Threatened	Threatened (2023)	1960

Bombus suckleyi Greene, 1860	S2?	S3S4 (Blue)	Threatened	1960
Lasioglossum sedi (Sandhouse, 1924)	SU	S2S4 (NR)		1940
Osmia montana Cresson, 1864	S5	S5 (NR)		1987

Key: S=Subnational; 5= Secure; 4=Apparently secure; 3=Special concern, vulnerable; 2=Imperilled; 1=Critically imperilled; NA=Not applicable; U=Unrankable; ?=Inexact numeric rank; NR = Not reviewed

Appendix 3: Publicly Available Data

Data Retrieval

Observations were downloaded from the Global Biodiversity Information Facility for the City of North Vancouver using the search terms “Andrenidae”, “Apidae”, “Colletidae”, “Halictidae”, “Megachilidae”, and “Melittidae” (GBIF 2025). These are the six bee families known to Canada.

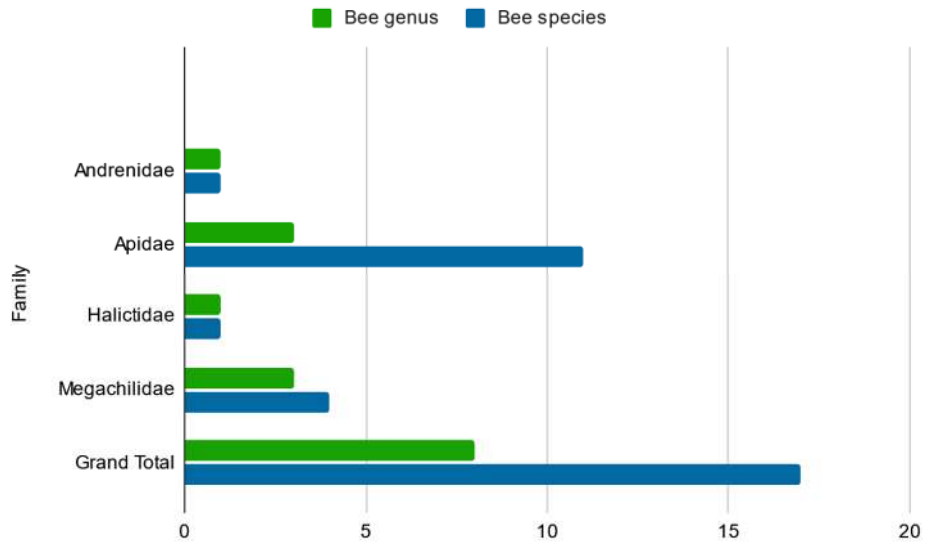
The publicly accessible record included 156 records, comprising eight genera, and 18 species from four of the six Canadian bee families: Andrenidae, Apidae, Halictidae, and Megachilidae. One hundred forty-two of the records were from the citizen science platform iNaturalist (www.inaturalist.org). iNaturalist records are comprised of uploaded photographs, and identifications can be suggested by both experts and the general public. Because these identifications may not have been verified by an expert, any species recorded only from iNaturalist with less than three records are considered “pending confirmation”, and were removed from the species list. No other quality controls have been applied to the GBIF data, it is presented “as is”.

Summary of Records

Basis of record	Institution	Records (n)
Human observation	Xerces Society - Bumble Bee Watch	5
	iNaturalist Research-grade observations	142
	Observation.org, Nature data from around the World	1
Preserved specimen	University of British Columbia - Spencer Entomological Collection	3
	Canadian National Collection	4
	Entomology Division, Yale Peabody Museum	1
Grand Total		156

Bee Family Snapshot

Four bee families were represented in the public records



Publicly Available List of Bees from the City of North Vancouver

Family	Genus	Species	Records (n)	Most recent observation
Andrenidae	*Andrena*	*Andrena prunorum*	3	Jul, 2023
Apidae	*Apis*	*Apis mellifera*	36	Sep, 2024
	Bombus	*Bombus fervidus*	3	Sep, 1960
		Bombus flavifrons	15	Jul, 2024
		Bombus impatiens	15	Aug, 2024
		Bombus melanopygus	23	Jun, 2024
		Bombus mixtus	17	Jun, 2024
		Bombus occidentalis	1	Sep, 1960
		Bombus suckleyi	1	Sep, 1960
		Bombus vosnesenskii	33	Aug, 2024
	Nomada		1	Apr, 2018
Halictidae	*Lasioglossum*	*Lasioglossum sedi*	1	Aug, 1940
Megachilidae	*Osmia*	*Osmia montana*	1	May, 1987